NERC News

Working Together to Keep the Lights On

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A Message to Our Readers From Michehl R. Gent, NERC President and CEO

I wanted to take this opportunity to let the NERC community know that NERC is actively supporting the U.S.-Canada Joint Task Force on the Power Outage in its investigation of the blackout that affected three NERC Regions: East Central Area Reliability Coordination Agreement (ECAR), Mid-Atlantic Area Council (MAAC), and Northeast Power Coordinating Council (NPCC). As a result of the blackout, customers in eight states and two provinces lost electric service: New York, New Jersey, Pennsylvania, Ohio, Michigan, Connecticut, Vermont, Massachusetts, Ontario, and Quebec.

As the entity responsible for establishing reliability standards for the bulk electric system, NERC must understand and communicate to its members what happened on the afternoon of August 14, 2003, and why it happened. We must also determine whether any of our standards were violated, and whether our existing standards are adequate or need to be modified to take into account the ways in which the bulk electric system is being used today. Finally, we must ensure that we take all measures necessary to avoid a recurrence of such an outage in the future.

Immediately after the onset of the blackout, NERC began to assemble a team of the best technical experts in North America to investigate exactly what happened and why. Every human and data resource that we requested from the industry has been provided. Experts from across the United States and Canada, and indeed, worldwide, have volunteered their services and their support for our investigation. To lead our effort, NERC established a strong steering group of the industry's best, executive-level experts from systems that were not directly involved in the cascading grid failure.

Shortly after our investigation began, representatives of the U.S. Department of Energy (DOE) and the Federal Energy Regulatory Commission (FERC) arrived at NERC. Volunteers from the industry and government representatives have been working side by side with NERC staff to help correlate, understand, and analyze the massive amounts of data that we have received. NERC and DOE representatives, including people from the Consortium for Electric Reliability Technology Solutions (CERTS), have been jointly conducting the fact-finding investigation of the events leading up to the blackout. A representative of the Canadian National Energy Board has recently joined the effort.

The investigation is ongoing, and no causal conclusions can yet be drawn. As you know, understanding exactly what happened and why is an enormously complex task requiring a methodical investigation by experts from many disciplines. The investigative team has already received many thousands of data records from control center event logs, disturbance recorders, and other system data that must be pieced together one at a time to understand how the blackout occurred.

Each event is time stamped as it occurs. However, we discovered that many of these time stamps were not accurate because the computers that recorded the information became backlogged, or the clocks from which the time stamps were derived had not been calibrated to the national time standard. As our data analysis progressed, we have been able to confirm those events that were accurately time-stamped, and from those events, we are in the process of aligning the event data for each system event from multiple sources until we are confident we have the precise time for each event. Without a deliberate, methodical reconstruction of events, it will be impossible to determine the exact cause of the failures that led to the blackout.

To ensure that the investigation is complete, NERC and DOE have requested data from the affected organizations starting at 8:00 a.m. EDT on August 14. This data will enable the investigators to form a clear picture of how that day started and what events through the course of the day may have contributed to or set the stage for events later in the day. Because that data is still being accumulated and has not been evaluated, it is too soon to determine whether events earlier in the day may have contributed to the outage.

To complete the technical investigation of what happened, we will construct models to simulate the exact conditions of August 14 and then subject those models to the events that occurred preceding the outage to understand its causes. These simulations will examine the electrical stability of the grid and whether there was a voltage collapse of the transmission system. We will also focus on why operating procedures that should have detected problems that developed on the grid and kept them from spreading did not prevent the cascading outage across such a wide area.

Preparing these simulations is a complex task requiring the reconciliation of power system data snapshots from multiple data recorders on August 14. The MAAC-ECAR-NPPC (MEN) Study Committee is gearing up to perform these simulations.

After we determine what happened, investigators will analyze the root causes of the cascading failure -- looking at both technical and human factors. From the root cause analysis, we expect to develop a clear set of recommendations to ensure that our system operators, equipment, and reliability standards will successfully handle the kinds of events that led to the blackout.

We will all learn many additional lessons from this event that will enable us to improve the overall reliability of the grid. We can also build on some of the positives from this event, such as the extraordinary efforts to quickly put the system back on line and restore electric service to consumers. I am confident that the investigation, when completed, will allow us to describe exactly what happened to the power system and why it failed.

I cannot address this event without underscoring yet again the need to establish mandatory, enforceable reliability standards. NERC has developed a world-class set of planning and operating standards, and I expect we will find areas of those standards that need improvement based on the events of August 14. However, as long as compliance with these standards remains voluntary, we will fall short of providing the greatest possible assurance of reliability that could be achieved through mandatory verification of compliance and the ability to impose penalties and sanctions for non-compliance.

We all know this shouldn't have happened, but it did. Please be assured that the NERC Board of Trustees and I are fully committed to finding out what happened on August 14 and why it happened, and to ensuring that steps are taken to prevent a reoccurrence. We are committed to support the U.S.-Canada Task Force in fully disclosing all the facts and the reasons for the cascading failure, and to putting forth concrete recommendations that will make the North American bulk electric system as reliable as we can make it.

Sincerely,

Michehl R. Gent

August 14, 2003 Blackout Investigation
NERC Steering Group

Scope

The NERC Steering Group steers the formulation and implementation of the NERC blackout investigation plan, reviews the milestone progress and results, and recommends improvements. The Steering Group provides a perspective of industry experts in power system planning, design, and operation.

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